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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,082	12/12/2005	Shuji Hinuma	68137(46342)	9415

21874 7590 12/10/2007

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EXAMINER	
SWARTZ, RODNEY P	

ART UNIT	PAPER NUMBER
1645	

MAIL DATE	DELIVERY MODE
12/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,082	HINUMA ET AL.	
	Examiner	Art Unit	
	Rodney P. Swartz, Ph.D.	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28 and 58-60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28 and 58-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicants' Response to Office Action, received 24 September 2007, is acknowledged. Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16, 19, 20, 21, 24, 25, 26, 27, 28, 58, and 59 have been amended. Claim 61 has been cancelled.

2. Claims 1-28 and 58-60 are pending and under consideration.

Objections/Rejections Withdrawn/Moot

3. The rejection of claim 61 under 35 U.S.C. 112, second paragraph, as being indefinite for "or substantially the same" sequence, is moot in light of the cancelation of the claim.

4. The rejection of claim 61 under 35 U.S.C. 112, second paragraph, as being indefinite for "represented by", is moot in light of the cancelation of the claim.

5. The rejection of claim 61 under 35 U.S.C. 112, second paragraph, as being indefinite for merely reciting a use without any active, positive steps, is moot in light of the cancelation of the claim.

6. The rejection of claim 61 under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, is moot in light of the cancelation of the claim.

7. The rejection of claims 1-28 and 58-60 under 35 U.S.C. 112, second paragraph, as being indefinite for "or substantially the same" sequence, is withdrawn in light of the amendments of the claims.

8. The rejection of claims 1-28 and 58-60 under 35 U.S.C. 112, second paragraph, as being indefinite for "represented by", is withdrawn in light of the amendments of the claims.

9. The rejection of claims 15-23 under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter, is withdrawn in light of the amendments of the claims.

Rejections Maintained

10. The objection to Figure 4 is maintained.

Applicants argue that the replacement drawing, deleting the second of the two figures, obviates the objection.

The examiner has considered applicants' argument, but maintains the objection in light of the new amended of the specification, see page 2 of applicants' response, in which the amended description of Fig. 4 now recites "Fig. 4A". The replacement figure is not labeled "Fig. 4A".

11. The objection to the specification, Page 15, line 29, is maintained. Applicants' amendment of the paragraph replaces "amide oe ester" with "amide oe or ester".

Claim Rejections - 35 USC § 112

12. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 1, 10, and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is drawn to a peptide sequence wherein "a methionine residue at the N-terminus is optionally formylated". It is unclear what limitation this places on the claimed peptide. This is especially unclear in the embodiments wherein the peptide is "an amino acid

acid sequence having at least 90% homology to the amino acid sequence of SEQ ID NO:1 or SEQ ID NO:21" because these embodiments are not required to have a methionine residue at the N-terminus. Claims 10 and 12-14 depend from claim 1, but do not clarify the issue.

14. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is drawn to a peptide sequence wherein "a methionine residue at the N-terminus is optionally formylated". It is unclear what limitation this places on the claimed peptide. This is especially unclear in the embodiments wherein the peptide is "an amino acid acid sequence having at least 90% homology to the amino acid sequence of SEQ ID NO:1" because these embodiments are not required to have a methionine residue at the N-terminus.

15. Claims 3 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are drawn to a peptide sequence wherein "a methionine residue at the N-terminus is formylated". It is unclear what limitation this places on the claimed peptide which are "an amino acid acid sequence having at least 90% homology to the amino acid sequence of SEQ ID NO:1 or SEQ ID NO:16 (claim 3) or 21 or 22 (claim 4)" because these embodiments are not required to have a methionine residue at the N-terminus.

16. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is drawn to a peptide sequence wherein "a methionine residue at the N-terminus is formylated and an isoleucine residue at the C-terminus is modified". It is unclear what limitation this places on the claimed peptide which may be "an amino acid acid sequence having at least 90% homology to the amino acid sequence of SEQ ID NO:21 or SEQ ID NO:22" because these embodiments are not required to have a methionine residue at the N-terminus and/or an isoleucine residue at the C-terminus.

17. Claims 6, 7, and 11-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are drawn to a peptide sequence wherein "a methionine residue at the N-terminus is optionally formylated". It is unclear what limitation this places on the claimed peptide. This is especially unclear in the embodiments wherein the peptide is "an amino acid acid sequence having at least 90% homology to the amino acid sequence of SEQ ID NO:17 or SEQ ID NO:23" (claim 6) or "an amino acid acid sequence having at least 90% homology to the amino acid sequence of SEQ ID NO:17" (claim 7) because these embodiments are not required to have a methionine residue at the N-terminus. Claims 11-14 depend from claim 6, but do not clarify the issue.

18. Claims 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are drawn to a peptide sequence wherein "a methionine residue at the N-terminus is formylated". It is unclear what limitation this places on the claimed peptide which are "an amino acid acid sequence having at least 90% homology to the amino acid sequence of

SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19 or SEQ ID NO:20"(claim 83) or "an amino acid acid sequence having at least 90% homology to the amino acid sequence of SEQ ID NO:23 or SEQ ID NO:24" (claim 9) because these embodiments are not required to have a methionine residue at the N-terminus.

19. Newly amended claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As newly amended, the claim now reads on the peptide consisting of the amino acid sequence of SEQ ID NO:1 or SEQ ID NO:16 or an amino acid sequence having at least 90% homology to the amino acid sequence of SEQ ID NO:1 or SEQ ID NO:16 "according to claim 1". Newly amended claim 1 is drawn solely to SEQ ID NO:1 or SEQ ID NO:21 or sequences which are $\geq$90% homologous with SEQ ID NO:1 or $\geq$90% homologous with SEQ ID NO:21.

The instant SEQ ID NO:16 fits none of the requirements of the embodiments of newly amended claim 1. Therefore, it is unclear what is meant by "according to claim 1".

20. Newly amended claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As newly amended, the claim now reads on the peptide consisting of the amino acid sequence of SEQ ID NO:21 or SEQ ID NO:22 or an amino acid sequence having at least 90% homology to the amino acid sequence of SEQ ID NO:21 or SEQ ID NO:22 "according to claim 1". Newly amended claim 1 is drawn solely to SEQ ID NO:1 or SEQ ID NO:21 or sequences which are $\geq$90% homologous with SEQ ID NO:1 or $\geq$90% homologous with SEQ ID NO:21.

The instant SEQ ID NO:22 fits none of the requirements of the embodiments of newly amended claim 1. Therefore, it is unclear what is meant by "according to claim 1".

21. Newly amended claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As newly amended, the claim now reads on the peptide consisting of the amino acid sequence of SEQ ID NO:21 or SEQ ID NO:22 or an amino acid sequence having at least 90% homology to the amino acid sequence of SEQ ID NO:21 or SEQ ID NO:22 "according to claim 1". Newly amended claim 1 is drawn solely to SEQ ID NO:1 or SEQ ID NO:21 or sequences which are $\geq$90% homologous with SEQ ID NO:1 or $\geq$90% homologous with SEQ ID NO:21.

The instant SEQ ID NO:22 fits none of the requirements of the embodiments of newly amended claim 1. Therefore, it is unclear what is meant by "according to claim 1".

22. Newly amended claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As newly amended, the claim now reads on the peptide consisting of the amino acid sequence of SEQ ID NO:17 or SEQ ID NO:18 or SEQ ID NO:19 or SEQ ID NO:20 or an amino acid sequence having at least 90% homology to the amino acid sequence of SEQ ID NO:17 or SEQ ID NO:18 or SEQ ID NO:19 or SEQ ID NO:20 "according to claim 6". Newly amended claim 6 is drawn solely to SEQ ID NO:17 or SEQ ID NO:23 or sequences which are $\geq$90% homologous with SEQ ID NO:17 or $\geq$90% homologous with SEQ ID NO:23.

None of the instant SEQ ID NO:17, 18, 19, nor 20 fits the requirements of the any embodiments of SEQ ID NO:23 from newly amended claim 6. Therefore, it is unclear what is meant by "according to claim 6".

23. Newly amended claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As newly amended, the claim now reads on the peptide consisting of the amino acid sequence of SEQ ID NO:23 or SEQ ID NO:24 or an amino acid sequence having at least 90% homology to the amino acid sequence of SEQ ID NO:23 or SEQ ID NO:24 "according to claim 6". Newly amended claim 6 is drawn solely to SEQ ID NO:17 or SEQ ID NO:23 or sequences which are $\geq$90% homologous with SEQ ID NO:17 or $\geq$90% homologous with SEQ ID NO:23.

The instant SEQ ID NO:24 does not fit the requirements of the any embodiments of SEQ ID NO:17 or SEQ ID NO:23 from newly amended claim 6. Therefore, it is unclear what is meant by "according to claim 6".

24. Claims 15-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are drawn to antibody against a peptide according to claim 1 or claim 6.

At least one embodiment of claim 1 is "a peptide consisting of an amino acid having at least 90% homology to SEQ ID NO:1 or SEQ ID NO:21". Thus, the claimed peptide of claim 1 may contain 1-2 amino acids different from the reference sequences. This difference can result in a change in the epitopes presented. Therefore, the antibody which binds to this peptide may not be identical to an antibody which binds to SEQ ID NO:1 or SEQ ID NO:21. Because of this

indefiniteness of the binding characteristics of the claimed antibody, the metes and bounds of what antibodies are included within the scope of the claims is unclear.

Likewise, at least one embodiment of claim 6 is "a peptide consisting of an amino acid having at least 90% homology to SEQ ID NO:17 or SEQ ID NO:23". Thus, the claimed peptide of claim 6 may contain 1-2 amino acids different from the reference sequences, and therefore, results in the same indefiniteness concerning binding antibodies as does the peptide of claim 1 above.

25. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is drawn to a method for screening a compound that alters a binding property or signal transduction between a G protein-coupled receptor protein and the peptide according to claim 1. The method comprises "using" (1) the receptor protein, and (2) the peptide according to claim 1.

However, the method does not actually contain any methods steps, nor any step which adds the suspect compound to the mixture of (1) the receptor protein and (2) the peptide according to claim 1.

Therefore, it is unclear how one screens a compound if the compound is not added to the mixture, and also if no actual measurements are being assessed on the binding of components (1) and (2).

26. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is drawn to a method for screening a compound that alters a binding property or signal transduction between a G protein-coupled receptor protein and the peptide according to claim 6. The method comprises "using" (1) the receptor protein, and (2) the peptide according to claim 6.

However, the method does not actually contain any methods steps, nor any step which adds the suspect compound to the mixture of (1) the receptor protein and (2) the peptide according to claim 6.

Therefore, it is unclear how one screens a compound if the compound is not added to the mixture, and also if no actual measurements are being assessed on the binding of components (1) and (2).

27. Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is drawn to the method of claim 24 which is a method for screening a compound that alters a binding property or signal transduction between a G protein-coupled receptor protein and the peptide according to claim 1. The method comprises "using" (1) the receptor protein, and (2) the peptide according to claim 1.

However, the method does not actually contain any methods steps, nor any step which adds the suspect compound to the mixture of (1) the receptor protein and (2) the peptide according to claim 1.

Therefore, it is unclear how one screens a compound if the compound is not added to the mixture, and also if no actual measurements are being assessed on the binding of components (1) and (2).

28. Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is drawn to a kit which comprises "using" component (1) and component (2). However, there is no actual recitation what the kit "contains", only that the kit "uses" components. Thus, it is unclear what are the metes and bounds of the components actually contained within the "kit".

29. Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is drawn to a kit which comprises "using" component (1) and component (2). However, there is no actual recitation what the kit "contains", only that the kit "uses" components. Thus, it is unclear what are the metes and bounds of the components actually contained within the "kit".

30. Claim 58 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is dependent from canceled claims 29 and 31.

31. Claim 59 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is dependent from canceled claims 29 and 31.

32. Claim 60 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is dependent from canceled claims 36 and 37.

33. Claim 59 provides for the use of a peptide, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

34. Claim 58 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for purification of various proteins and *in vitro* binding assays, does not reasonably provide enablement for methods for preventing and/or treating the listed diseases. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Enablement requires that the specification teach those in the art to make and use the invention without undue experimentation. Factors to be considered in determining whether a disclosure would require undue experimentation include (1) the nature of the invention, (2) the state of the prior art, (3) the predictability or lack thereof in the art, (4) the amount of direction or guidance present, (5) the presence or absence of working examples, (6) the quantity of experimentation necessary, (7) the relative skill of those in the art, and (8) the breadth of the claims.

The nature of the invention - method for stimulating cell migration or preventing/treating 44 different disease states by administration of: 1) a peptide, its amide or

ester, or salts thereof of claim 1, **or** 2) a peptide, its amide or ester, or salts thereof of claim 6, **or** a G protein-coupled protein, its partial peptide, or salts thereof, according to a canceled claim, **or**, a polynucleotide according to a canceled claim.

The state of the prior art for prevention and/or treatment for the extremely broad scope of diseases listed in the claim indicates that each disease state is a complex entity whose treatment is multifactorial. Applicants are directed to any medical references for details of the complexity of treatment required for the listed disease states. The examiner will furnish, upon request, excerpts from two such medical references available at the time of filing: 1) Cecil Textbook of Medicine, Fifteenth edition, Beeson, McDermott, and Wyngaarden, eds., W.B. Saunders Company, Philadelphia, PA, USA, 1979, pages 1 to 2357, and, 2) Harrison's Principles of Internal Medicine, Tenth Edition, Petersdorf, Adams, Braunwald, Isselbacher, martin, and Wilson, Eds., McGraw-Hill Book Company, New York, New York, USA, 1983, pages 1-2212.

There is a lack of predictability in the art that a single component as claimed in the instant claim would be successful in preventing the listed diseases based upon the references listed above.

The amount of direction or guidance present in the instant specification is not sufficient for the extremely broad scope of the claim, i.e., successful prevention of disease following administration of the claimed peptides. The working examples in the specification are drawn mostly to the identification and purification of the peptides with only examples 10 and 14 directed to comparison of *in vitro* binding inhibitory activity. There are no examples of any disease preventions or treatments.

Therefore, the immense quantity of experimentation necessary to provide sufficient support for the instant claim constitutes merely an invitation to experiment without a reasonable expectation of success.

Claim Rejections - 35 USC § 101

35. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

36. Claim 59 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Conclusion

37. No claims are allowed.

38. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Rodney P. Swartz, Ph.D., Art Unit 1645, whose telephone number is (571) 272-0865. The examiner can normally be reached on Monday through Thursday from 9:00 AM to 7:30 PM EST.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Shannon Foley, can be reached on (571)272-0898.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RODNEY P SWARTZ, PH.D
PRIMARY EXAMINER
Art Unit 1645

November 26, 2007